
ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WMB-17

2005

Low-Impact Development: Taking Steps to Protect New Hampshire's Surface Waters

What is Low-Impact Development?

Low-impact development (LID) is an approach to site development and design that provides increased opportunities for stormwater infiltration and increased hydrologic function within a watershed. This means that runoff is infiltrated into the ground instead of flowing to the nearest waterbody and, as a result, the natural hydrology of the area can function closer to the way it would have before development.

The benefits of infiltrating runoff include reduction of the frequency and magnitude of flooding, and increased groundwater recharge rates, potentially making more groundwater available for municipal and domestic use and breaking down pollutants in the runoff as it travels through the soil. LID also limits the negative impacts development may have on wildlife habitat and other natural features and helps to maintain or improve ecosystem health. LID can be implemented to reduce habitat fragmentation, allowing for more continuous open space and a healthier local environment.

The LID approach to development may be incorporated into a new development and can also be used to update and improve upon existing development. The focus of LID is the use of on-site techniques that reduce, or even eliminate, runoff as well as control the flow and direction of stormwater, while maintaining existing hydrologic features, such as functional wetlands and naturally flowing streams. This development approach can be encouraged through the creation of watershed districts and ordinances and can protect and improve the quality of New Hampshire's lakes and ponds.

LID Planning Fundamentals

When planning to use LID in conjunction with any development project, there are a few basics to keep in mind:

- It is important to have a good understanding of the hydrology of the site, as hydrologic features and function should be the foundation for new development. This would include considering where streams, rivers, lakes, ponds and wetlands are located, and reducing or eliminating disturbances to these waterbodies.
- When working with existing development, hydrology is important too, as it is possible to use the natural hydrology of the site to dictate which runoff and stormwater control methods are most appropriate and where they should be placed.

- Any new, retrofit or improvement project should be approached with a "micromanagement" approach to stormwater control, as a few small measures can combine to have a large impact.
- Stormwater should also be controlled from the source, when possible, and efforts should be made to prevent runoff and stormwater from reaching any surface waters, including lakes and ponds.
- Finally, using simple, non-structural methods of stormwater control are desirable, while maintaining a multi-functional landscape that is aesthetically pleasing and beneficial to the watershed.

LID Techniques

There are many methods of runoff diversion and retention that fall under the umbrella of LID. They are:

- Efforts should be made to locate any new development close to existing development and roadways and away from surface waters. This allows for easy hook-up to existing utilities, such as sewer pipes, less impervious surface and increased opportunities to collect or treat runoff before it reaches a lake, pond or stream.
- Cluster developments are encouraged, as they increase the amount of common open space and help maintain wildlife corridors.
- To improve upon existing development and to improve surface water quality: vegetation should be used as a filter; runoff should be diverted around sites where pollutants may be picked up, such as gas stations; impervious surfaces should be kept clean to prevent sedimentation; and catch basins and other flow control devices should be kept clear of excess debris so they may function properly when needed.
- General conservation design principles also apply, such as using narrower and shorter streets and driveways, reducing lawn size, limiting impervious surface area, and maintaining significant vegetated buffers.
- Additional control methods include: bioretention areas, rain gardens, grassy swales, infiltration trenches, infiltration basins or ponds, native plantings, green roofs, permeable pavement and dry wells.

LID Protects Lake and Pond Quality

There are many benefits to lakes and ponds when LID measures are implemented. Most of the runoff and stormwater control methods prevent many pollutants from ever reaching nearby surface waters. Sedimentation, one of the largest sources of non-point source pollution in the state, may be reduced and even eliminated within a watershed. Chemical pollutants, such as phosphorus and chlorides, are also collected before reaching the waters of local lakes and ponds.

Reduction in phosphorus loading is highly beneficial to New Hampshire lakes and ponds, as phosphorus is a limiting nutrient and the key element linked to lake aging and decline. Phosphorus also binds readily to soil particles and can be prevented from entering surface waters if runoff infiltrates into the ground, and phosphorus-laden sediment is prevented from traveling through the watershed. Additionally, reducing the amount of phosphorus entering a lake or pond will help to prevent algae blooms, and reduce aquatic plant growth, including exotic, aquatic plants. Reducing runoff also reduces the effects of large storms and spring snowmelt on the watershed, as water levels are more consistent and regulated.

For more information concerning LID, please contact the DES Watershed Division's Biology Section at watershed@des.state.nh.us or (603) 271-2963, or refer to "Chapter 2: *Best Management Practices for Developing and Developed Land*" in the January 2004 edition of *Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town*

Officials. This publication is available through the DES Public Information Center, at (603) 271-2975, or on-line at www.des.nh.gov/wmb/was/docs/2004_npsBMP.pdf.